

### REMARKS

Applicant appreciates the thorough examination of the present application that is reflected in the Official Action of April 19, 2002. For the convenience of the Examiner, the points raised in the Official Action will be responded to in the order in which they were raised.

#### **A New Set of Formal Drawings Is Being Supplied**

It appears that a new set of formal drawings may not have been received with the earlier Amendment of November 6, 2001. A set of formal drawings is being filed concurrently herewith. In the formal drawings, Figures 2 and 3 are designated as "Prior Art".

#### **The Rejection Under 35 USC §112 Has Been Overcome**

Claims 1, 12, and 23 have been rejected under 35 USC §112, second paragraph, because the claims recite "scaling the traffic despread values and/or the pilot despread values by the scaled factors." Claims 6, 16, 28, 34, 36, and 38 have been rejected under 35 USC §112, second paragraph, because they recite "scaling at least one of the traffic despread values, the channel estimates and the pilot despread values by the scaled factors." The Examiner suggests that these recitations are not supported by lines 26-31 of page 8 of the specification. However, support for the above-referenced recitations of the claims is provided, for example, at lines 29-33 on page 4 of the specification, as follows:

According to the invention, the traffic despread values, the channel estimates and/or the pilot despread values are scaled by the scale factors so as to obtain detection statistics that correspond to the relative strengths of the plurality of traffic channels and the plurality of pilot channels.

(Emphasis added.)

Moreover, for other reasons, Claims 1, 12, 16, and 23 have been amended to remove the recitations to scaling the traffic despread values and the channel estimates by the scaled factors. For these reasons, Applicant requests that the rejections of

Claims 1, 2, 4-9, 12, 13, 15-20, 23, 24, 26-31, and 34-39 under 35 USC §112 be withdrawn.

Claims 6, 28, 34, 36, and 38 are otherwise indicated to be allowable and Applicant respectfully requests their allowance.

**Claims 1-2, 4-5, 7-9, 12-13, 15-16, 18-20, 23-24, 26-27 and 29-31 Are Patentable Over Bruckert et al.**

These claims were rejected under 35 USC §102(e) as being anticipated by U.S. Patent 5,812,542 to Bruckert et al. Claim 1 has been amended to recite that the pilot despread values are scaled by scale factors, and that channel responses are estimated using the scaled pilot despread values to produce channel coefficient estimates. Consequently, the **pilot despread values are scaling before the channel responses are estimated from the scaled pilot despread values**. Similar recitations may be found in amended Claims 12, 16, and 23.

In contrast, Bruckert et al. describes smoothing and averaging channel estimates **before any scaling** is performed on the pilot signals. In particular, Bruckert et al. instructs that channel estimates are smoothed and averaged at Blocks 258 and 259 of FIG. 2 **before** the pilot signals are scaled at Block 261 of FIG. 2, and also as further described at lines 20-54 of Column 9, lines 33-43 of Column 10, and lines 5-16 of Column 11. Bruckert does not describe or suggest that pilot despread values are scaled by scale factors, and that channel responses are estimated using the scaled pilot despread values to produce channel coefficient estimates, as recited in Claim 1.

The Examiner has stated, with regard to Claims 2, 13, and 14, that scaling in the order of  $A*B*C$ , where A is a scaling factor, is equivalent to  $B*C*A$ . However, scaling the pilot despread values **before** estimating channel responses therefrom, as recited in Claim 1, provides different results than scaling pilot signals **after** forming channel estimates, as described by Bruckert et al. More specifically, Claim 1 recites that scale factors are formed corresponding to the relative strengths of the traffic channels and the pilot channels. Claim 1 further recites that the pilot despread values are scaled by the scale factors and that they are then used to estimate the channel

responses. Because the relative strengths of the traffic channels and the pilot channels are constantly changing over time, the estimated channel responses are a function of the constantly changing pilot despread values. In contrast, Bruckert et al. describes smoothing and averaging the channel estimates (i.e., changing the values thereof) before the pilot signals are scaled. Smoothing and averaging the channel estimates **before** they are scaled with the time varying pilot signals, as described by Bruckert et al., provides different results than estimating the channel estimates **after** the time varying pilot despread values are scaled, as provided by Claim 1.

For these reasons, Claim 1 is patentable over Bruckert et al. Claims 12, 16, and 23 include similar recitations to Claim 1 and are patentable over Bruckert et al. for substantially the same reasons as Claim 1.

Claims 4-5, 7-9, 13, 15, 17-20, 26-27, 29-31 are patentable as depending from allowable independent claims.

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**CONCLUSION**

Applicant now has shown that the claims are patentable over the cited art. Accordingly, Applicant respectfully requests withdrawal of the outstanding rejections and allowance of the present application. If, in the opinion of the Examiner, a telephonic conference would expedite the examination of this matter, the Examiner is encouraged to contact the undersigned by telephone at (919) 854-1400.

Respectfully submitted,



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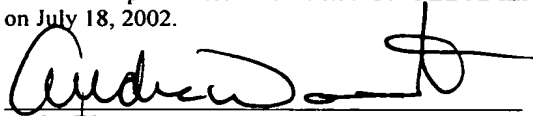


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Audra Wooten

Date of Signature: July 18, 2002

**VERSION WITH MARKINGS TO SHOW CHANGES MADE**

Sir:

The following is an addendum to the concurrently filed amendment in response to an Official Action dated April 19, 2002 in the above referenced application. This addendum includes a marked-up version of the changes made to the claims by the present amendment.

**In the Claims:**

Please enter amended Claim 1 as follows:

1. (Twice Amended) A method of processing spread spectrum signals from a plurality of traffic channels and a plurality of pilot channels, comprising the steps of:

receiving data samples from the plurality of traffic channels and the plurality of pilot channels;

correlating the received data samples to spreading codes to produce pilot despread values and traffic despread values;

forming scale factors corresponding to the relative strengths of the plurality of traffic channels and the plurality of pilot channels;

estimating channel responses using the scaled pilot despread values to produce channel coefficient estimates;

combining the traffic despread values to obtain detection statistics that correspond to information symbols, using the channel coefficient estimates; and

scaling [the traffic despread values and/or] the pilot despread values by the scale factors to form scaled pilot despread values, and such that the step of combining obtains detection statistics that correspond to the relative strengths of the plurality of traffic channels and the plurality of pilot channels.

Please cancel Claim 2.

Please enter amended Claim 12 as follows:

12. (Twice Amended) A system for processing spread spectrum signals from a plurality of traffic channels and a plurality of pilot channels, the system comprising:

means for receiving data samples from the plurality of traffic channels and the plurality of pilot channels;

means for correlating the received data samples to spreading codes to produce pilot despread values and traffic despread values;

means for forming scale factors corresponding to the relative strengths of the plurality of traffic channels and the plurality of pilot channels;

means for estimating channel responses using the scaled pilot despread values to produce channel coefficient estimates;

means for combining the traffic despread values to obtain detection statistics that correspond to information symbols, using the channel coefficient estimates; and

means for scaling [the traffic despread values and/or the] pilot despread values by the scale factors to form scaled pilot despread values, and such that the means for combining obtains detection statistics that correspond to the relative strengths of the plurality of traffic channels and the plurality of pilot channels.

Please cancel Claim 13.

Please enter amended Claim 16 as follows:

16. (Twice Amended) A system for processing spread spectrum signals from a plurality of traffic channels and a plurality of pilot channels, the system comprising:

means for receiving data samples from the plurality of traffic channels and the plurality of pilot channels;

means for correlating the received data samples to spreading codes to produce pilot despread values and traffic despread values;

means for forming scale factors corresponding to the relative strengths of the plurality of traffic channels and the plurality of pilot channels;

means for estimating channel responses using the scaled pilot despread values to produce channel coefficient estimates;

means for combining the traffic despread values to obtain detection statistics that correspond to information symbols, using the channel coefficient estimates; and

means for scaling [at least one of the traffic despread values, the channel estimates and] the pilot despread values by the scale factors to form scaled pilot despread values, and such that the means for combining obtains detection statistics that correspond to the relative strengths of the plurality of traffic channels and the plurality of pilot channels;

wherein the means for forming scale factors comprises:

means for estimating power on a pilot channel;

means for estimating power on a traffic channel; and

means for determining scale factors based upon the estimated powers on the pilot channel and the traffic channel.

Please enter amended Claim 23 as follows:

23. (Twice Amended) A system for processing spread spectrum signals from a plurality of traffic channels and a plurality of pilot channels, the system comprising:

a receiver that receives data samples from the plurality of traffic channels and the plurality of pilot channels;

a correlator that correlates the received data samples to spreading codes to produce pilot despread values and traffic despread values;

a scale factor estimator that estimates scale factors corresponding to the relative strengths of the plurality of traffic channels and the plurality of pilot channels;

a channel coefficient estimator that estimates channel responses using the scaled pilot despread values to produce channel coefficient estimates;

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a combiner that combines the traffic despread values to obtain detection statistics that correspond to information symbols, using the channel coefficient estimates; and

a scaler that scales [the traffic despread values and/or] the pilot despread values by the scale factors to form scaled pilot despread values, and such that the combiner obtains detection statistics that correspond to the relative strengths of the plurality of traffic channels and the plurality of pilot channels.

Please cancel Claim 24.